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Towards Financial Sustainability of the Hospital Sector in Poland—A Post Hoc Evaluation of Policy Approaches

Katarzyna Dubas-Jakóbczyk [1,*] and Anna Kozieł [2]

[1] Institute of Public Health, Jagiellonian University Medical College, 31-008 Krakow, Poland
[2] Health, Nutrition 8 Population, World Bank, The World Bank Office in Poland, 00-113 Warsaw, Poland; akoziel@worldbank.org
* Correspondence: katarzyna.dubas@uj.edu.pl

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Abstract: In Poland, as well as in many other countries around the world, hospitals constitute the cornerstone of health care provision. In 2020, hospitals stand at the frontline of the fight with the coronavirus pandemic, and are facing huge pressures. The issue of supporting the financial sustainability of the hospital sector has become especially important. The objectives of this study were to: (1) Provide a retrospective evaluation of the reforms aimed at improving the financial sustainability of hospitals in Poland, adopted and implemented within the last two decades (2000–2019), and (2) identify the main drivers of hospitals' financial standing. A longitudinal analysis (2003–2018) of the stock of public hospital debt in Poland was also conducted. Methods applied included statistical data analysis and literature review. Results indicate that diverse top-down approaches (debt-relief programs with restructuration or corporatization elements as well as hospital network reform) provided limited results in terms of the improvement of the individual hospitals' financial standing. The reasons for the reforms' failures were mixed. Public hospitals operate under a unique and complex system of regulations with diverse external stakeholders and/or determinants influencing hospital revenues and cost generation. A more comprehensive and evidence-based approach is needed in developing policies aimed at supporting hospitals' financial sustainability in Poland.

Keywords: hospital; reform; financial sustainability; evaluation

1. Introduction

Hospitals constitute the cornerstone of health care systems around the world. Although, for many years now, there have been international trends to shift towards ambulatory care provision, promoting community care and implementing diverse inpatient care cost-containment procedures [1–3], the position of hospitals is still strong. In 2017, among 31 OECD countries for which data are available, the share of hospitals in total current health expenditures ranged from 28.3% in Germany to 53.2% in Turkey, and was above 35% in 21 countries [4]. In 2017, hospitals employed more than half of the total number of physicians and up to 80% of nurses among the majority of European Union countries for which data are available (23 and 14, respectively) [5]. The basic function of every hospital is providing medical services. Yet, hospitals carry out many other activities (e.g., teaching and research) and constitute important social and economic stakeholders in their local environments [6].

The issue of hospitals' financial sustainability constitutes a complex concept, in relation to both the measurement techniques and the determining factors. Hospital financial performance can be measured by diverse indicators related, e.g., to profitability, liquidity, assets, and debt, as well as composite measures (combining multiple indicators) [7]. In terms of the factors influencing hospitals'

financial performance, several literature reviews can be identified [8–11], but with the majority of studies focusing on the United States (US) market. The authors propose diverse classifications of factors influencing hospital performance, including among others: The ownership [8,10,11], governance [9], and system affiliation [11].

The hospital sector in Poland holds many common characteristics with other Central and Eastern European (CEE) countries [12]. As a post-communist country, Poland conducted major health system reforms in the 1990s, including, i.g., introduction of public health insurance and independent payer institutions, as well as decentralization of health care provision infrastructure ownership [13]. In 2016, Poland spent 6.5% of its gross domestic product on health, which was below the European Union average of 9.9% [5]. As in many others CEE countries, the hospital sector in Poland is characterized by oversized infrastructure, the prevalence of publicly owned hospitals/beds, as well as public financing. In 2018, beds in public hospitals constituted 87% of the total number of hospital beds in Poland. The ownership structure of public hospitals is fragmented and divided between the three levels of local government, ministries, and medical universities (Table S1 in the Supplementary Materials presents the structure of the hospital sector in Poland in 2018). In comparison to other European countries, Poland is characterized by overprovision of hospital care with simultaneous deficits in long-term care [5,14]. The issues of an instable financial situation and running overdue liabilities by public hospitals have been immanent features of the Polish health system for more than two decades now [13,15–17]. This is also similar to the situation in some of the others CEE countries, as the problem of public hospitals running overdue liabilities exists, e.g., in Romania, Hungary, Croatia, Bulgaria, and Slovakia [12]. These countries have also conducted diverse reforms aimed (directly or indirectly) at managing hospitals' overdue liabilities and improving their financial standing. For example, in Hungary (2012), Croatia (2013), and Slovakia (2016), hospitals' ownership and/or management were centralized; in Czechia (2005), public units were corporatized; while in Bulgaria (2018), unified standards for the financial management of state hospitals were introduced [12].

In Poland, the question: "Who is responsible for hospital debts?" has never been answered, with responsibility being passed between hospital management, the owners, the public health insurance payer (National Health Fund—NHF), and the Ministry of Health. However, in practice, the hospital owners (mostly local governments) were often forced to cover the hospitals' financial deficits and/or secure additional sources of funding [18,19]. In general, local governments are in a unique situation of conflicting responsibilities. On one hand, they are the hospital owners, bearing the management and financial burden, yet with no influence on the amount of funding received from the NHF. In addition, any decision on hospital restructuration involving reducing beds and/or employment is politically cumbersome due to pressures from local communities (e.g., when the hospital is the major employer in the county/city) [16]. In 2019, the Constitutional Tribunal ruled it against the Polish Constitution (the highest legal act) for the local government to cover hospitals' financial deficits [20], opening the way to future legislative changes.

As of writing this paper, the hospital sector in Poland is facing huge pressure due to the coronavirus (COVID-19) pandemic [21]. The issue of supporting the financial sustainability of the hospital sector has become especially important. A recently published study has indicated the generally difficult financial situation of hospitals in Poland—in 2018, the majority of public hospitals generated a financial loss, while 40% of hospitals had overdue liabilities [17]. The objectives of the current study are to: (1) Provide a retrospective evaluation of the reforms aimed at improving the financial sustainability of hospitals in Poland, adopted and implemented within the last two decades (2000–2019), and (2) identify the main drivers of hospitals' overdue liabilities. In order to provide background for these objectives, a longitudinal analysis of the stock of public hospital debt in Poland between 2003 and 2018 was also conducted. This paper constitutes a part of the World Bank long term project on the sustainability of hospital care provision in Poland.

The importance of evaluating public policies, including health reforms, has been broadly discussed in the literature [22–24]. Availability of the evidence regarding health reforms' effects is crucial for

planning future interventions. In Europe, the potential for shared, cross-national policy learning in the field of health reforms is high [12,25,26]. Thus, reform evaluations are valuable sources of information for both national policy makers as well as an international audience. This paper adds to the existing literature by providing a long-term review and evaluation of policy approaches aimed at improving public hospitals' financial standing in the example of one CEE country.

2. Materials and Methods

The methods used included quantitative analysis of the statistical data and a literature review. The data from different sources were triangulated in order to obtain a more detailed and balanced analysis of the research topic [27]. As diverse definitions can be used for the term 'debt', its meaning in this paper is consistent with International Monetary Fund criteria [28]. The term 'debt' refers to all liabilities, whilst arrears are overdue liabilities (thus included in overall debt).

The statistical data includes mainly those available in the public domain, aggregated data on: The value of public hospital debt; the number of public hospital beds per ownership structure and region; public payer (National Health Fund—NHF) budget per type of care. In the case of the former, the data source was the statistical form Rb-Z, covering diverse financial liabilities and being obligatorily submitted by all public institutions [29]. The aggregated data for public health care providers are published quarterly by the Ministry of Health [30]. The data include all public providers operating as independent health care units (samodzielny publiczny zakład opieki zdrowotnej—SPZOZ), being the basic legal form of hospitals in Poland. It is a special legal form of organization, with no bankruptcy capacity and dedicated solely for public health care providers [17]. In 2018, there were 471 hospitals—SPZOZs, with approximately 152 thousand beds, which constituted 83.7% and 73.1% of total public and all (both public and private) bed numbers, respectively (Table S1 in the Supplementary Materials).

The literature review covered: National strategic documents, legal regulations, technical and audit reports, and articles in peer-reviewed journals related to hospital care organization and provision in Poland, published and/or adopted between 2000 and 2020. An important source of data were formal audit reports published by the Supreme Audit Office, which is the top independent state audit institution responsible for fostering sound management and effectiveness in public service [31]. We have also reviewed official statements and/or recommendations issued by diverse stakeholders of the national hospital sector, (i.e., the Polish Federation of Hospitals, the Union of University Clinics, the Polish Counties Associations), as well as available conference proceedings, articles in professional journals and relevant grey literature sources.

3. Results

The results presented below are divided into those related to the statistical data analysis (Section 3.1) and national literature review (Sections 3.2 and 3.3)

3.1. The Stock of Hospital Debt and Arrears

Between 2003 and 2018, the value of overall debt increased by 32%, whilst arrears decreased by 74% (in real terms, 2003 prices). Although the dramatic increase in the total level of debt and arrears observed between 2003 and 2006 was contained, the situation has remained at a stable, worrisome level ever since (Figure 1). In 2018, the total debt of public providers (SPZOZs) was at the level of 13.1 billion PLN (0.6% of GDP), including 1.6 billion PLN of arrears. For hospitals, as for any other types of enterprise, having liabilities (both long- and short-term) is a natural situation, standard from the economical point of view. Yet, the problem arises when new liabilities are incurred in order to settle overdue ones and the debt problem is simply postponed into the future (rolling-over debt). Fragmented data show that this may be the case in some hospitals [19].

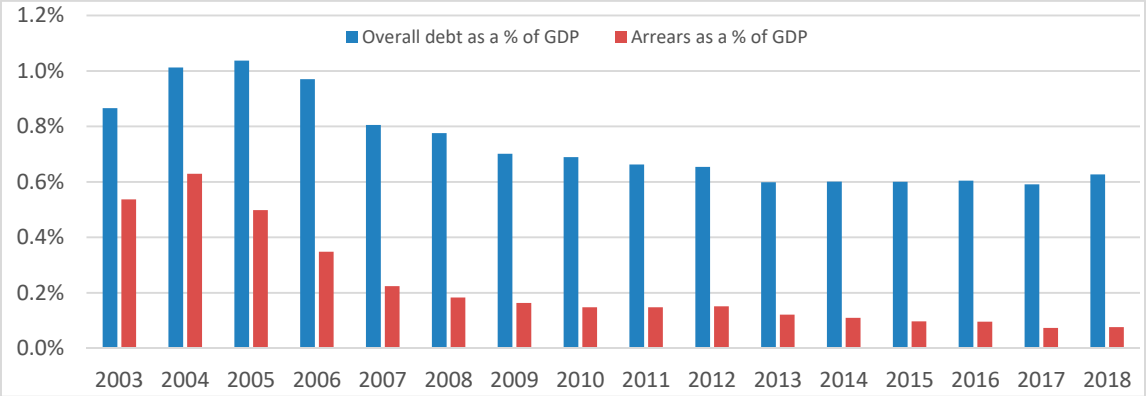

Figure 1. Overall public hospitals debt and arrears as a % of GDP between 2003 and 2018.

3.1.1. As a Share of the Public Payer Budget

Over the years, a trend of decreasing the share of arrears in the overall debt value (from 62% in 2003–2004) can be observed (Table 1). This is the result of partially settling overdue liabilities as well as the debt restructuration processes by means of increasing the share of long-term liabilities—e.g., by taking loans and opening lines of credit in banks or other financial intermediaries in order to settle arrears.

Table 1. The stock of public hospitals debts and arrears between 2003 and 2018.

Year	Nominal Values (Million PLN)		Arrears as a % of Overall Debt	Overall Debt as a % of National Health Fund (NHF) Budget for Hospitals	Arrears as a % of NHF Budget for Hospitals
	Overall Debt	Arrears			
2003	7327.7	4543.7	62.01%	N/A *	N/A *
2004	9450.1	5872.3	62.14%	72.23%	44.88%
2005	10,273.6	4933.6	48.02%	71.05%	34.12%
2006	10,384.2	3723.8	35.86%	66.76%	23.94%
2007	9563.3	2666.2	27.88%	54.58%	15.22%
2008	9979.7	2357.9	23.63%	40.05%	9.46%
2009	9627.6	2241.8	23.29%	36.95%	8.60%
2010	9963.1	2138.8	21.47%	36.81%	7.90%
2011	10,383.6	2316.5	22.31%	37.78%	8.43%
2012	10,661.4	2474.0	23.21%	35.72%	8.29%
2013	9922.1	2015.5	20.31%	32.90%	6.68%
2014	10,345.8	1890.7	18.28%	33.27%	6.08%
2015	10,812.6	1754.3	16.22%	32.40%	5.26%
2016	11,249.5	1790.4	15.92%	31.98%	5.09%
2017	11,757.0	1464.6	12.46%	29.89%	3.72%
2018	13,064.1	1595.1	12.21%	30.58%	3.73%

* the National Health Fund was funded in 2004.

In the analyzed period, the public payer systematically increased the value of its budget for hospitals (Figure 2). When adjusted for inflation, the NHF total budget increased between 2004 and 2018 twofold, while its share for hospitals increased 2.5 times (Table S2 in Supplementary Materials). As a consequence, although the value of overall hospital debt remained on a relatively stable level, its share in the NHF budget for hospitals systematically decreased (Table 1).

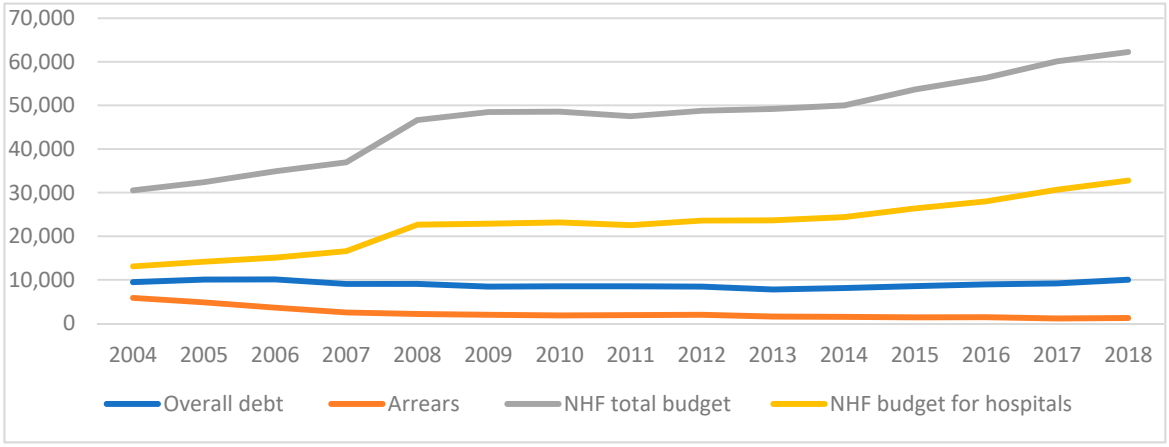

Figure 2. The stock of public hospital debt and the public payer (NHF) budget between 2004 * and 2018 in real terms (2004 prices, Million PLN). * the National Health Fund was founded in 2004.

3.1.2. Per Region

In 2018, the region stock of debt was not commensurate with the size of its hospital sector. Although the biggest share in the total debt value was attributable to regions with the highest number of hospital beds (Mazowieckie and Śląskie), there were also regions with a low share of the number of beds and a high value of arrears (Kujawsko-Pomorskie) as well as regions with a high share of the number of beds and low arrears (Wielkopolskie) (Figure 3).

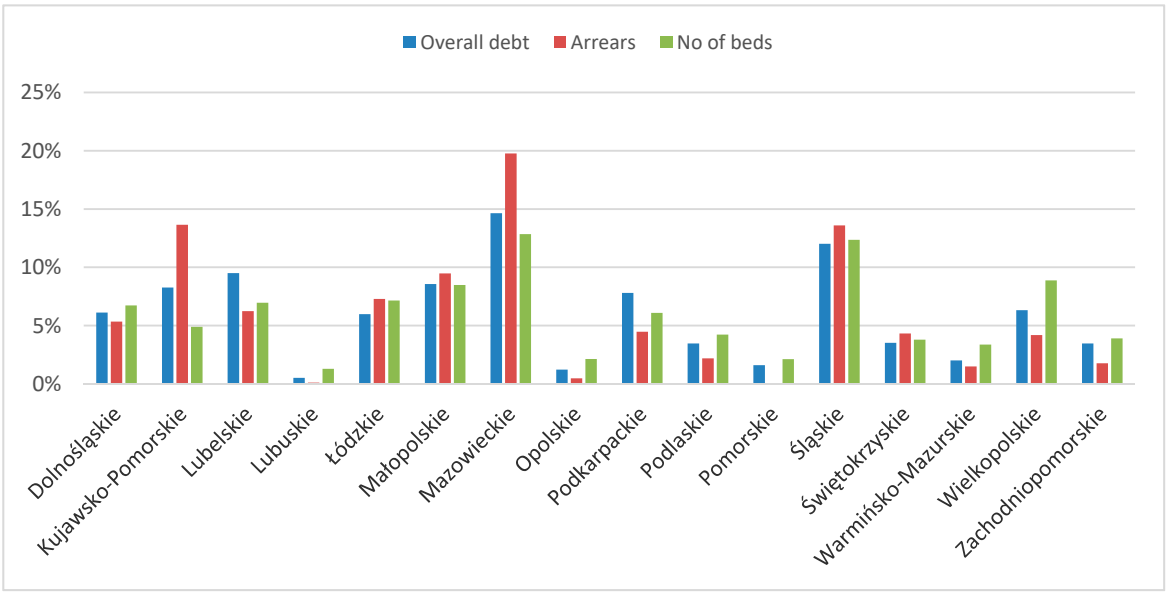

Figure 3. Regions' share of the total value of debt, arrears, and number of public hospital beds in 2018 (%).

Table S3 in the Supplementary Materials presents changes in the stock of public hospitals' debts and arrears between 2010 and 2018 per region. In general, significant variations can be observed between the regions. The vast majority of regions (13 out of 16) increased their overall debt between 2010 and 2018, yet at the same time, only one region (Kujawsko-Pomorskie) also increased its share of arrears. In 2018, the share of arrears in the overall debt ranged from 2.7% in Lubuskie to 20.2% in Kujawsko-Pomorskie. However, analysis of causes of regional differences in the hospitals' debt burden should include hospital level data. As of writing this paper, no data are available for 2018, but in 2016: In Kujawsko-Pomorskie Voivodeship, 47% of the region's overall debt and 23% of its arrears were generated by only one hospital

(the most indebted hospital in Poland: The Regional Specialist Hospital in Grudziądz—Table S4 in the Supplementary Materials presents its case study). Additionally, in 2016, in the Małopolskie region, 49% of overall debt and 54% of arrears were generated by two university hospitals. At the same time, although Pomorskie Voivodeship was able to significantly reduce the overall value of debt and arrears between 2010 and 2018 (Table S3 in the Supplementary Materials), it was also a voivodeship where corporatization processes were quite popular and the debt of corporatized public hospitals is not included in the aggregated data.

3.1.3. Per Owner

Hospitals owned by local government units represented the largest share of debt and arrears: In 2018, their share of the total number of beds was at the level of 77%, of overall debt—72%, and of arrears—62% (Table 2). The next position went to university hospitals which, although they represented only 14% of beds, in 2018 accumulated 22% of overall debts and 32% of arrears. Hospitals owned by medical universities were also characterized by the highest share of arrears in overall debt (almost 18% in 2018) as well as the highest value of debt and arrears per one hospital bed (Table 2).

Table 2. The stock of public hospital debts and arrears in 2018 per owner.

Hospitals' Owner	Variable							
	Nominal Value (Million PLN)		Share (%)		Arrears as a % of Overall Debt	Share of Number of Beds *	Overall Debt Per Bed (PLN)	Arrears Per Bed (PLN)
	Overall Debt	Arrears	Overall Debt	Arrears				
Local governments	9425.9	996.8	72.18%	62.49%	10.57%	76.94%	80,672	8531
Medical universities	2867.6	506.2	21.96%	31.73%	17.65%	13.80%	136,854	24,157
Ministries	765.9	92.1	5.86%	5.78%	12.03%	9.26%	54,471	6552
Total	13,059.4	1595.1	100.00%	100.00%	12.21%	100.00%	85,998	10,504

* Number of beds includes only public hospitals operating as SPZOZs (samodzielny publiczny zakład opieki zdrowotnej); with more than 10 beds.

In terms of arrears—the majority of owners decreased the total value between 2010 and 2018. Yet, for all types of owners there was an increase in the value of arrears between 2017 and 2018 (Figure 4). In general, when analyzing data per year, there was a significant decrease in the total value of arrears between 2012 and 2013, caused mainly by a decrease in the number of local government hospitals. This was partially caused by the corporatization processes of hospitals owned by local governments conducted on the basis of the 2011 Law on Therapeutic Activities [32] (see the following section). The debt of a corporatized hospital is not included in the aggregated data garnered and published by the Ministry of Health (MoH) [30].

3.1.4. Structure of Arrears

In 2018, the overdue liabilities towards suppliers (drugs, materials, equipment, energy, etc.) constituted almost 70% of the total arrears (Table 3). The main change, in comparison to 2010, is a decrease in the share of social insurance liabilities (overdue hospital staff's social insurance premiums).

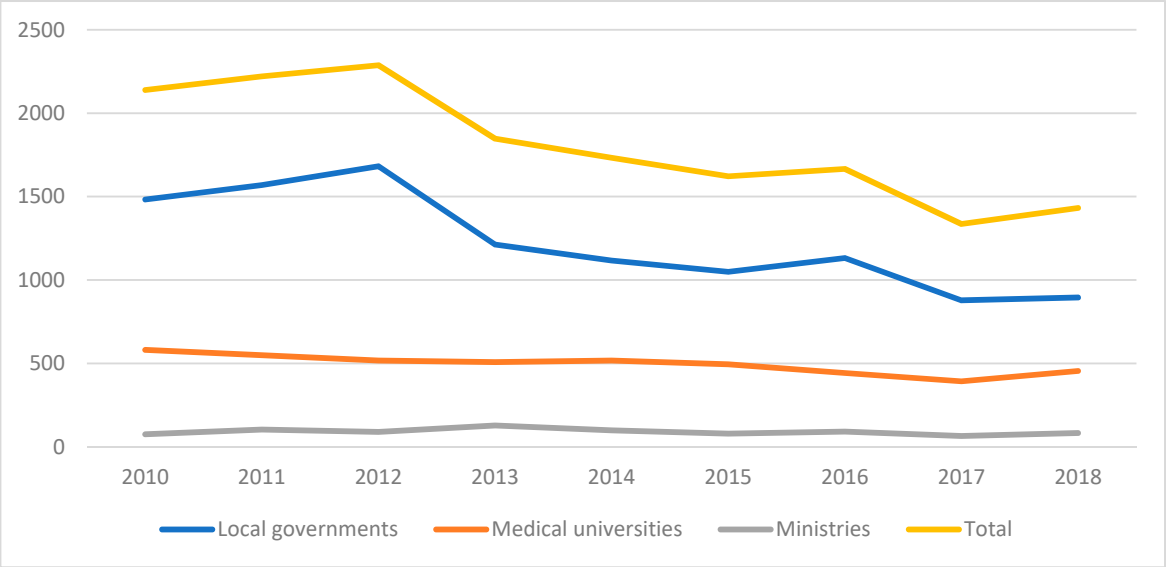

Figure 4. The stock of public provider arrears between 2010 * and 2018 in real terms per owner (2010 prices, Million PLN). * No data per owner for previous years.

Table 3. Structure of arrears in 2010 * and 2018 (%).

Type of Arrears/Year	2010	2018
social insurance	12.39%	0.87%
taxes and other public liabilities	2.64%	0.36%
private liabilities	14.84%	11.87%
loans (from the owners and banks)	3.48%	0.45%
drug and material suppliers	40.47%	58.93%
equipment suppliers	7.76%	6.97%
energy, gas, water suppliers	5.57%	2.79%
external services (renovations, transport services)	12.84%	17.77%
Total arrears	100.00%	100.00%

* No data on structure of arrears for previous years.

3.2. Evaluation of Central Government Efforts Aimed at Resolving the Hospital Debt Problem

Within the last two decades, the central government has made several direct and/or indirect attempts to deal with the hospital debt problem. They have provided different requirements and solutions for indebted hospitals (Table 4). The direct efforts included debt relief programs in combination with hospital restructuration (2005) or corporatization (2009 and 2011). The total value of financial support received by hospitals under these programs was approximately 5 billion PLN. It included both written-off loans in the government owned bank and written-off public liabilities, as well as loans received from the owners (local governments) and liabilities taken over by the owners. Implemented in 2017—the hospital network reform, although not directly targeted at the hospitals' debt problem, included elements aimed at improving the relationship between the payer and hospital care providers while ensuring continuity and stability of financing for the latter [33].

Table 4. Central government programs aimed at resolving the hospital debt problem, implemented between 2000 and 2020.

No	Adoption/ Implementation	Main Elements	Implementation Process	Effect on Hospitals' Financial Standing—Based on Case Studies (CS) of a Group of Hospitals
1	2005/ 2005–2009	Debt relief and restructuration: • Loans from central and local budgets and debt relief elements on the conditions of conducting restructuration [34].	561 hospitals applied for a loan, whilst 532 completed the restructuration process. • The overall value of loans given by the government owned bank was 2.2 billion PLN, 59% of which was subsequently written off. In addition, some of the tax (and other public) liabilities were written off (approx. 750 million PLN); • hospitals undergoing the restructuration processes also received financial support from the owners [35]	Based on eight hospital CS (period 2005–2014): • Receiving financial support was conditioned only by launching the restructuration program and not linked to its progress (hospitals failed to achieve the targeted improvement, without any consequences); • the final effect was highly dependent on the individual hospital's ability to manage the debt problem (e.g., implementation of effective cost-containment procedures, especially in relation to staff costs); • a crucial component was close cooperation between the hospital management and the owner (local government body) in planning and conducting the restructuration process; • in the majority of analyzed hospitals (five out of eight), the support received was consumed without a lasting improvement of financial standing [18].

Table 4. *Cont.*

No	Adoption/ Implementation	Main Elements	Implementation Process	Effect on Hospitals' Financial Standing—Based on Case Studies (CS) of a Group of Hospitals
2	2009/ 2009–2011	Debt relief and corporatization: • Loans from central budget and debt relief programs on the condition of conducting corporatization [36].	Only 55% (754 million PLN) of the budgeted amount was used: • A total number of 62 local government units participated: 54 SPZOZs were transformed into commercial companies, and an additional 26 were liquidated [37]; • the total value of liabilities taken over by owners of transformed hospitals—was at the level of 1.4 billion PLN [37].	Based on 20 hospital CS (period 2011–2014): • Corporatization did not lead to significant changes in the entities' management processes (only 6 out of 20 hospitals had an active internal audit unit); • corporatized hospitals did not implement effective cost-containment procedures; • the revenue structure of the transformed hospitals did not change, with the vast majority of revenues (>90%) coming from a contract with the NHF; • in the group of hospitals whose debts were taken over by a local government during the transformation process—in 50% of cases, the improvement in financial standing was short-term with increasing deficits in the following years [38].
3	2011/ 2011–2013	Debt relief and corporatization: • Loans from the central budget and debt relief programs on the condition of conducting corporatization [32].	The scale of the hospital corporatization process was lower than expected: • In the period of 2011–2013, 34 local government units corporatized a total number of 45 SPZOZs; • the majority of owners of hospitals with a deficit decided to cover it (instead of conducting corporatization) [38].	
4	2017/ 2017-ongoing	The hospital network: • System of basic hospital service provision; • 4-year guarantee of financing; • global budget for complex care provision [39].	A total number of 594 hospitals were included in the network, the vast majority of which were public: • The included hospitals were divided into seven reference levels (three basic and four specialist); • the included hospitals received guaranteed access to public financing (for four years) and are financed based on a global budget principle for the complex care provided (in-patient as well as ambulatory specialty visits and rehabilitation); • there are financial incentives to shift towards ambulatory care provision [33].	Based on 29 hospitals CS (period 2015–2018): • The reform has not changed the structure of services provided by hospitals, or led to organizational changes; • hospitals included in the network were characterized by a low bed occupancy ratio (below 60%); • although hospital revenues increased, the increase of costs (mainly due to staff costs) was even higher—between 2018 and 2017, the average values increased by 13% and 17%, respectively; • the reform has not improved hospitals financial standing; the vast majority of audited units increased the value of financial deficit and/or liabilities after the reform implementation [40].

3.2.1. The 2005 Debt Relief and Restructuration Program

The 2005 Law on Public Support and Restructuration of Public Health Care Units [34] introduced a program of loans from the central budget and a debt forgiveness mechanism for SPZOZs which provided a restructuration plan. The restructuration was to cover both operational and strategic management changes aimed at improving the hospital's financial standing. A total number of 561 hospitals applied for a loan from the government owned bank, whilst 532 of them completed the restructuration process (Table 4). The direct result of the program was a significant decrease in the value of aggregated hospital arrears, from 5.8 billion PLN in 2004 to 2.2 billion PLN in 2009 (see the previous subsection). However, within the same period of time, the overall debt value slightly increased. At the level of individual hospitals, the program achieved mixed results. In numerous cases, the financial support was consumed without lasting improvement in financial standing [17,18].

3.2.2. The 2009 and 2011 Debt Relief and Corporatization Programs

Both the 2009 program of Supporting Local Government Units in Actions Stabilizing the Health System [36] as well as the 2011 The Law on Therapeutic Activities [32] provided financial support for the hospital owners—local governments, on the condition that they transform hospitals operating as a SPZOZ into a commercial code company. The financial support was to cover the existing financial deficit of the SPZOZ, thus allowing for the transformed hospital to begin operations as a debt-free unit. The main assumption behind corporatization was that it creates strong incentives for the hospital company owners to improve management, conduct restructuration programs, and ensure financial liquidity.

The local government units' participation in both programs was lower than expected. Under both programs, a total number of 96 local governments corporatized 99 hospitals (Table 4). One of the biggest inconsistencies of hospital sector governance in Poland was that within the last two decades, the corporatized public hospitals were not formally tracked in public statistic. Thus, no data on these hospitals' debts and arrears are available. At the level of individual hospitals, the available, fragmented data show that hospital corporatization provided mixed results in terms of improving hospitals' financial standing [38]. One of the main assumptions that was not realized in practice—was the predicted increase in commercial patient revenues. In general, in Poland the corporatized hospitals are no longer subject to the legal ban on commercial patients (as is the case for SPZOZs). Yet, the audit conducted on a group of 20 hospitals showed that after corporatization, the revenue structure had not changed (more than 90% of revenues came from the contract with the public payer) [38]. Additionally, corporatization did not lead to significant changes in the entities' management processes. Similarly, as with the 2005 debt relief and restructuration program, in numerous cases the financial support led to short-term improvement in financial standing with increasing deficits in the following years.

3.2.3. The 2017 Hospital Network Reform

The hospital network reform was introduced on an ad hoc basis, without proper preparation and a vocatio legis period [33,41]. It introduced a system of basic hospital service provision with a 4-year guarantee of financing. The majority of public hospitals were included [33]. Analyses based on fragmented data indicate that the reforms have not changed the structure of services provided by hospitals, or improved their financial standing [40]. In general, the network inclusion criteria were based on the existing infrastructure, rather than population health needs [33,40]. The period of the reform implementation overlapped with introduction of significant regulatory wage increases for medical workers, as well as an increase of the industry minimal wage [42]. As a consequence, although the nominal value of the revenues generated by the hospitals included in the network increased after the reform implementation, the increase of the costs was even higher. For example, in the case of county hospitals, the vast majority of which were included at the basic, level 1 of the network, the period

after reform implementation was characterized by significant deterioration of hospitals' financial situation [17,43,44].

3.3. Factors Driving New Arrears

The direct reason of the debt accumulation is continuing deficit—the excess of the hospital expenditures over revenues in the fiscal year. Hospitals operate in a highly regulated environment and there are diverse factors that can influence the value of their revenues and expenditures. Table 5 presents the matrix of influencers on public hospital revenues and expenditures in Poland. The main stakeholders are: The Ministry of Health, the payer (National Health Fund), the owners of hospitals (local governments, medical universities, and ministries), and hospitals themselves (their management). In general, the first three stakeholders provide determinants that can be classified as external to the hospital management. The presented factors do not constitute a complete list, but rather, a general overview and some examples of possible determinants of the hospitals revenues and expenditures.

Table 5. Matrix of influencers on public hospital revenues and expenditures in Poland.

Actors/Influencers	Revenues	Expenditures
Ministry of Health	• benefit package (inclusion/exclusion of services) • prices of services (role of the Tariff Agency) • legal regulations on revenue differentiation (e.g., the ban on commercial services for SPZOZs) • division of the EU investment funds • influencing demand through primary health care reforms	• technical and professional standards • clinical pathways, treatment protocols • regulations on salaries (regulatory wage increases) • medicine prices (negotiations carried out by the Ministry of Health) • regulations on quality in health care
National Health Fund	• decision on inclusion of hospitals in the network • contracting procedure • rules on paying for overprovision • the budget division between NHF regional branches	• control procedures (fines)
Hospital owners	• financing investments • paying debts/losses (formal acceptance of financial statements)	• major restructuration decisions (consent from the owner as a prerequisite) • joint procurement initiatives (in relation to both medical and non-medical supplies)
Hospital management	• revenues other than NHF (e.g., from non-medical services or from investment) • coding within the diagnostic related group system	• management of staff costs • other cost-containment activities (e.g., outsourcing, debt restructuration programs)

Among the diverse factors influencing hospital revenues—the pricing of services and NHF activities related to setting the final payment value (for both services included and excluded from the network) are the major ones. In terms of the expenditures side—staff costs are the most important

factor. Finally, both elements of the financial outcome equation (revenues and costs) are influenced by management techniques at the level of individual hospitals.

The subject of hospital services price valuation has for many years aroused numerous controversies. Some types of services were believed to be valued below the actual costs of provision, whilst others generated profits. The main stakeholders were largely cognizant of the problem. Thus, in 2015, the Tariff Agency was launched (as a part of the Agency of Health Technology Assessment). Its main objective was to improve the cost base for hospital service reimbursement mechanisms [45]. The agency developed guidelines for a standardized cost reporting scheme for hospitals (applied by hospitals on a voluntary basis) and systematically carries out assessment of the real costs of pre-defined hospital services. The agency issues recommendations on the DRGs cost base adjustment, which should be applied by the payer, beginning in the new reporting period. However, the biggest challenge seems to be its retrospective character, which results in price valuation 'lagging behind' the current cost influencers (e.g., significant staff costs increases) [46].

In Poland, the public payer (NHF) holds a monopsony position in financing health services [13]. The value of the payment received from the NHF is the main determinant of hospital revenues. This is influenced not only by the scope of services provided, but also their price valuation, as well as diverse details of the payment mechanism. The indirect objective of the hospital network reform (2017) was to eliminate the issue of hospitals providing services above the contracted limit. Under the new system, the value of the hospital budget for future periods is calculated based on the number and value of services provided in the previous period. Yet, the mathematical formula for the budget calculation includes negative financial incentives for exceeding its granted value—the higher the overspending, the lower the increase of the future budget (optimal budget realization is between 98% and 102% of its total value) [33]. In practice, the NHF can pay for the services provided above the hospital budget only when it has adequate reserve funds (e.g., when other hospitals from the region do not exhaust their budgets, creating savings for the payer).

In terms of the expenditure side—personnel costs constitute the major contributor. In 2018, the average share of staff costs in total hospitals costs ranged from 47.1% in university hospitals to more than 64.5% in the case of hospitals owned by counties and cities (general, local hospitals). For all types of hospital owners, the share of staff costs in total costs increased between 2013 and 2018 [47]. Staff costs are influenced by both regulatory salary increases as well as formal professional standards (regulations on personnel qualifications and work organization). Due to professional standards, hospitals managers need to hire a pre-defined amount of medical staff with pre-defined qualifications in order to be able to provide services within the public system. While minimum standards can help ensure patient safety, in the context of the general problem of high doctor and nurse deficits in Poland, they also put hospital managers under strong pressure. Case studies of individual hospitals show that due to the doctor deficits, hospitals were forced to cease provision of specific services [48]. In general, there is high competition in employing doctors, and hospital managers need to use financial incentives to attract physicians [42]. In terms of salary levels, the Polish health system has a long tradition of medical workers striking over wage increases. The government's reaction to strikes has taken the form of regulations on wage increases related to all professions or settlements with a particular staff category [42]. The most recent regulation related to medical workers salaries was adopted in 2017 and introduced graduated minimum wages (by staff category), with annual increases until reaching the targeted level in 2021 [49]. In general, the average level of medical workers' salaries in comparison to other sectors has significantly increased during the last two decades: From 1.3 to 2.2 for doctors, and from 0.7 to 1.2 for nurses, between 2002 and 2018 (Table S5 in the Supplementary Materials). However, this still does not satisfy the demands, and it remains low in comparison to other high-income countries [42].

Finally, at the level of individual hospitals, the problem of poor financial standing might relate to ineffective management. Several case studies of highly indebted hospitals indicated the existence of numerous problems related to ineffective management as well as lack of proper monitoring and

involvement by the hospital owner [18,50–52]. Table S4 in the Supplementary Materials presents the case study of the Regional Specialist Hospital in Grudziądz—the most indebted hospital in Poland in 2018.

4. Discussion

The results indicate that accumulation of debts by public hospitals has been an immanent feature of the Polish health system for more than two decades now. The significant increase in the total level of debt and arrears observed at the beginning of the century was contained. Yet, the stock of hospital debt remains on a relatively stable level, despite a significant increase in hospital financing by the public payer (the NHF budget for hospitals increased 2.5 times between 2004 and 2018) (Figure 2).

Evaluation of the central government efforts aimed at resolving the hospital debt problem indicates limited results in terms of improving individual hospitals' financial standing. Case studies of individual hospitals showed that under both the debt relief programs connected with restructuration and the corporatization processes, the final effect was highly dependent on the individual hospital's ability to manage its debt. In the long term, in the case of both approaches, numerous hospitals consumed the financial support without lasting improvement in the financial standing (Table 4). Additionally, implementation of the 2017 hospital network reform did not result in improving hospitals' financial standing. Analysis of factors driving new arrears indicated the existence of a wide variety of external determinants that can influence the value of revenues and costs generated by hospitals. In the case of the revenues side, the services' price valuation and the public payer activities related to setting the final payment value are the major ones. In terms of the expenditures side, the staff cost influencers (regulatory salary increases and professional standards) constitute the most important factors.

Within the last decade, many European countries have conducted hospital sector reforms as a response to the 2007/2008 global financial crisis [53,54]. According to the analysis by Mladovsky et al. (2015), between 2008 and 2013, at least 19 European countries implemented reforms aimed at reducing hospital budgets, fees, or tariffs, as well as diverse restructuration processes, including hospitals closures and mergers [54]. Poland was not affected by recession after the 2007–2008 financial crisis, and within the last two decades, has experienced strong economic growth without any obvious macroeconomic imbalances [55]. This may have contributed to a less strict approach to reforming the hospital sector and containing its costs than those applied in other countries. As other European countries implemented diverse hospital spending limits and/or staff cost caps [12,54], our results showed that in Poland the NHF budget for hospitals systematically increased as well as the medical staff salaries (Tables S2 and S5 in the Supplementary Materials). Additionally, no direct measures were applied in Poland in order to limit the oversized infrastructure. Although some promising programs have been developed to improve the hospital care capacity planning at both central and regional levels (health needs maps, capital investments assessment, the hospital network) [56], no practical progress have been made [21].

The issue of the general difficulty and numerous challenges in conducting hospital sector reforms has been broadly discussed in the international literature [57–61]. In general, hospitals are organizations characterized by a high resistance to change [59,60]. Public hospitals are especially problematic in implementing changes due to determinants related to structural dysfunctionalities and bureaucracy issues [59]. In Poland, as well as other countries, public hospitals operate under a unique and extremely complex system of regulations. There are several stakeholders directly influencing hospital management, with different and often competing interests. For hospital sector governance reforms to be effective, strategic decisions at the macro level must be complemented by appropriate management at the level of individual hospitals. The first area is politically influenced and value based, while the other has a rather technical character with performance indicators that can be measured both clinically and financially [58]. Our results have shown that in Poland, the top-down approaches aimed at improving public hospitals' financial standing were not effective. Reforms implemented by the central government were often not accompanied by appropriate management changes at the level of

individual hospitals. The reasons for the reforms' failures were mixed and included, e.g., ineffective management at the level of individual hospitals; lack of cooperation between the hospital owners and the management; inability of the hospitals to break-even due to cost increases driven mainly by external factors (regulatory salary increases).

Evidence from other countries shows that health system reforms often face implementation barriers and a lack of adequate political commitment needed to overcome vested interests and apply a longer-term approach [54]. A recently published comparative analysis on hospital sector reform in 11 CEE countries, implemented between 2008 and2019, indicated the existence of three major challenges, common throughout the analyzed countries, in conducting hospital reforms: The lack of a comprehensive approach; unclear outcomes; and political influence [12]. These also apply to the policy approaches analyzed in our paper. All central government reforms aimed at improving hospitals' financial standing conducted within the last two decades in Poland lacked a comprehensive approach and provided mixed outcomes. The issue of political influence was especially relevant to the process of hospital corporatization. Between 2008 and 2015, the Ministry of Health strongly supported corporatization and provided financial incentives for local government to conduct the process, while after the parliamentary elections in 2015, the party that took over declared itself against it. Additionally, in the case of corporatization the issue of 'political influence' has another dimension—the trade-off between central and local policy responsibilities. After corporatization, hospitals were no longer subject to Ministry of Health reporting requirements regarding their level of debt, which may be indirectly interpreted as shifting the whole responsibility to the owners (local governments).

In general, the fact that in Poland the majority of hospitals are owned by independent local governments and that these owners have decided to conduct corporatization processes (as a means to increase the hospital managerial autonomy, among other reasons) is in line with trends in other European countries with decentralized hospital governance [62]. Such decentralization is seen as a means to improve hospital responsiveness to community needs and increase flexibility. Yet, this also means acknowledging the loss of the potential efficiency gains from centralization and the need to balance system level objectives and the 'narrower focus' decision making in a locally run system [62]. In Europe, a variety of approaches have been applied, aimed directly or indirectly at enhancing hospital cost-containment. Studies show numerous similarities between different countries in relation to the reforms' content and objectives [2,12,54]. Yet, at the same time, the evidence on the reform results is limited. There is a lack of comprehensive reform evaluation allowing for shared learning [2,12].

To the authors' knowledge, this is the first study providing an overview of the policy approaches aimed at improving hospitals' financial standing in Poland. Our study includes longitudinal analyses and presents the complexity of the hospitals' financial standing determinants—from different perspectives and policy levels. There are however limitations to be noted. The major one is related to the data sources. In general, in Poland, the lack of good quality and comprehensive data on hospital sector operation constitutes a huge challenge [17,63,64]. As mentioned in the methods, the aggregated data on the stock of public hospital debt covers only hospitals operating as SPZOZs. As a consequence, it does not cover corporatized hospitals and research institutes, which in 2018 represented 14.3% and 3.0% of the total number of hospital beds, respectively (Table S1 in the Supplementary Materials). In addition, the evaluation of the reforms' impact on the hospital's financial standing was based on fragmented data—case studies of groups of hospitals, as presented in the Supreme Audit Office reports. In order to secure the validity of the findings, the data from these reports were triangulated with the available literature. Due to lack of data, the authors were also unable to provide a more comprehensive evaluation, e.g., with the application of some of the existing theoretical frameworks for health reform assessment [24,57,65]. We have applied a narrow perspective—focusing solely on the objective of improving hospitals' financial standing (reducing overdue liabilities), while the important aspects of reforms' potential impact on quality of care and/or accessibility were not analyzed.

This study provides an important implication for both the researchers and policy-makers. In the case of the former, there is a need to plan and conduct a primary data research on hospital financial

performance which should support the process of developing evidence informed policy interventions. There seem to be a gap in literature on financial performance of hospitals (and its determinants) in European countries, as majority of available evidence is focused on the US market. For example, in Poland good research data are needed on the incentives to change at the level of individual hospitals. The national policy-makers, on the other hand, need to: (1) Develop regulations which enable building a comprehensive hospital sector data warehouse; (2) include the policies impact evaluation (both ex-ante and post-hoc) as an obligatory element of the reform planning and implementation process. Our results showed that during the last two decades, the process of governance of public hospitals in Poland was characterized by numerous inconsistencies. Top down approaches were ineffective in securing the financial sustainability of the hospital sector. There is no single and straightforward solution to the problem of hospitals' poor financial standing, and diverse hospitals might need different set of solutions. While planning future reforms a comprehensive and multilevel approach must be applied. Diverse stakeholders at the micro and mezzo levels need appropriate sets of incentives and practical tools in order to meet the system level objectives of accessible, cost-effective hospital care of appropriate quality. The current (2020) crisis related to the coronavirus (COVID-19) pandemic put hospitals in the center of policy-makers interest. It is a source of huge pressures for hospitals, but can also be seen as a window of opportunity for conducting positive hospital sector reforms [66].

Supplementary Materials: The following are available online at http://www.mdpi.com/2071-1050/12/12/4801/s1, Table S1. Structure of hospitals in Poland in 2018, Table S2. The value of the National Health Fund total budget for health services and its share of hospital care between 2004 and 2018, Table S3. Changes in the stock of public hospitals' debts and arrears between 2010 and 2018 per region, Table S4. Case study of the regional Specialist Hospital in Grudziądz, Table S5. The average monthly salary of an employed person per sector and occupational group between 1998 and 2018 (chosen years) (PLN).

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